



**DYED WATER TESTING PROCEDURES
JONES FALLS SEWERSHED
BALTIMORE CITY PROJECT 994**



The information contained in this manual is not intended to address or account for all situations or circumstances encountered, rather it provides the user with general guidelines of the procedures to be followed for Dyed Water Testing in the Jones Falls Sewershed.

DYED WATER TESTING

In an effort to identify illicit connections; cross-connections and/or infiltration and inflow (I/I) into the sanitary sewer system different methods such as CCTV inspections, manhole inspections smoke testing, etc. are used. One of these methods is non-toxic dyed water testing. Main line defects, cross-connections, manholes with evidence of I/I, roof drains and more can be investigated, traced and identified using dye testing.

Dyed water testing/ dyed water flooding is an inexpensive method used to identify illicit connections or other system defects that allows rain or ground water to enter the sanitary sewer system. It is a simulation technique used to confirm that a specific defect is contributing I/I to the sanitary conveyance system. It is also used to identify and confirm cross-connections from the sanitary sewer to the storm drain system and vice versa.

Different degrees of dyed water testing can be utilized to identify or otherwise confirm sources of clear water or illicit connections to the sanitary or storm drain collection system. These include items such as inflow from downspouts, area drains, patio drains, window well drains, stairwell drains and driveway drains that may not have been confirmed during the smoke testing process or other cross connections to the sanitary or storm sewer system. Suspect locations recorded during other field observations, or identified under prior studies can be utilized for scheduling effective dye tests. Care should be taken when conducting dyed water testing to ensure that the drains or connections where the dyed-water is introduced can adequately convey water and not create back-ups. Dyed water testing should not be conducted when temperatures are expected to be near or below freezing. There are several methods of dye-water testing, each specific to their intended function. These tests include dyed water flooding and dyed-water tracing.

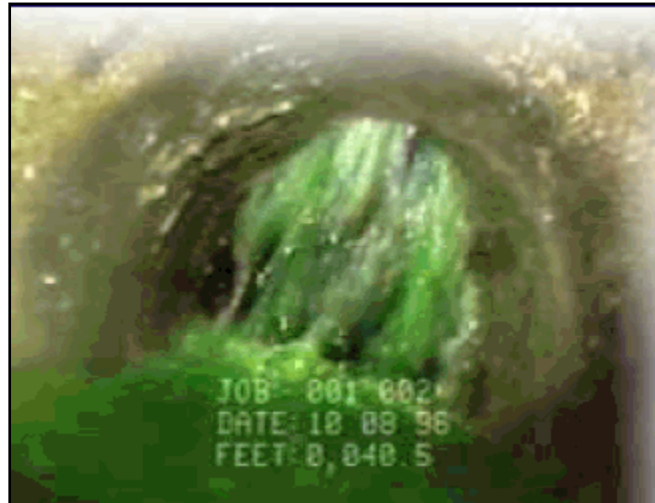
DYED WATER FLOODING

Dyed water flooding is typically used for storm drains and/or storm drain ditches to identify if leaks are present. The dye flood test detects pipe segments where it was thought there could be either a direct or indirect connection between the storm drain and sanitary sewer system. Direct connections between storm drains and sanitary sewers are typically identified during smoke testing operations, and then any suspect locations confirmed using dyed water flooding. To complete this test, the suspect storm drain was plugged or the area located in the vicinity of the suspect defect flooded with dyed water. Typically, fire hydrants are used as the water source for the test and dye added to the drain or area at the test location. A waiting period of at least one hour following the initiation of the dye water should be used before the test is considered negative. Dyed water flooding is also used in conjunction with CCTV inspection to identify the exact location(s) of defects and/or indirect cross connection(s) or defect(s). To further define the

location of defects that need to be identified or confirmed, dyed water tracing is often utilized.

DYED WATER TRACING

Dyed water tracing utilizes CCTV inspection equipment in conjunction with dyed water. This process allows the inspection team to identify the exact location(s) of any indirect cross connection(s) between a storm drain and sanitary sewer or the location of a specific defects and trace the origin of the leak or connection point. Dyed water tracing can be conducted at any time of the year so long as the temperatures are above freezing. Defects are noted where dyed water was observed entering the sanitary sewer and can be traced to their connection point or origin using the CCTV inspection equipment.



The types of illicit connections typically identified using dyed water test are:

- **Direct illicit connections**
 1. Building sanitary sewer connections to the storm drain
 2. Cross connections between the sanitary sewer and storm drain
- **Indirect illicit connections**
 1. Broken and leaking sanitary sewer pipes or manholes
 2. Surface runoff into the sewer



Illegal roof connection



Broken sewer pipe



Defective chimney and barrel in manhole



Smoke testing reveals storm sewer connected to sanitary system.
Dye test confirms connection location

Suspected illicit connections or sources of I/I revealed during the smoke testing process or other defects that cannot always be identified during the smoke testing process such as downspouts, area drains, patio drains, window well drains, stairwell drains, and driveway drains are further investigated and confirmed with dyed water testing.

By conducting dye testing, inappropriate connections or other defects can be confirmed. The test will detect whether the sources are directly connected to the sanitary sewer and specifically where the source is located along the pipe segment.

During this process, non-toxic dyed water is introduced into a structure or pipe where a prohibited connection is suspected (i.e storm sewer features, roof drain leaders, driveway drains, or area drains) or flooded onto a surface where an underground defect is suspected. After introducing the dyed water, the dye is documented and the downstream sanitary sewer manhole.



Dyed- Water rainfall simulation testing equipment



Dyed colors for specific tests

Dyed Water Testing Procedures

Fire Hydrants are normally used as a water source for the test. If a hydrant is not convenient to the testing site, then water must either be carried to the site or delivered by a water tanker.

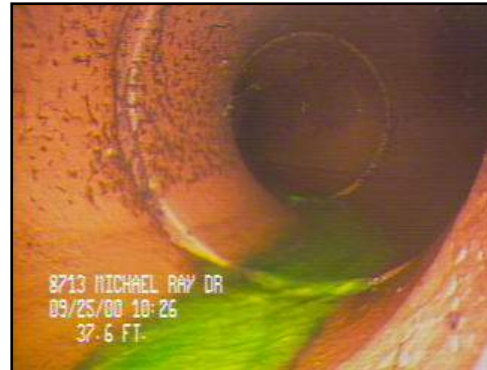
Sandbags or sewer pipe plugs may be used to isolate sections of the sewer or to control the rate of flow in order to properly observe the dye. Specific procedures will vary, depending on the suspected source of the defect and/ or the configuration of the test site.

Dyed water testing/dyed water flooding is frequently used in conjunction with close-circuit television inspection. A CCTV camera is placed in the sewer to find specific sites of inflow. Several different colors of dye can be used to clearly identify different defects or connection points.

Typically dyed-water is introduced into the collection system and someone will stand at a downstream manhole in the system and wait for the observation of dye during the test.



Dye enters the sewer from a defective joint



Dye in the sewer enters from a lateral connection



Dye leaking into a manhole from a defective chimney



Dye observed in a down stream manhole

Dyed water testing/dyed water flooding should be performed during dry weather and should not be conducted when temperatures are expected to be near or below freezing for safety.

The time for monitoring of dyed water testing will vary, depending on the flow characteristics in the pipes that are being tested. The time for monitoring dye flooding should take at least an hour before the test is considered negative. In order to make sure the tests are properly conducted, the individual checking the downstream manholes should be in place prior to the introduction of the dye into the test section.

Based on the circumstances at each test location, additional personnel may be needed to monitor multiple locations. It is recommended that radios be utilized to maintain contact during the test. All guidelines and techniques used for dyed water testing shall follow EPA and NASSCO standards as well as sound engineering practices

Notification Procedures

When access onto private property is required to complete a dye test, the contractor shall notify owners approximately four weeks prior to any dyed water/dyed water flooding activities.

At no time shall individuals of the dye testing crews put themselves in harmful or dangerous situations. When entering property, make an effort to notify the owner. If traffic control is needed, contact necessary entities to make arrangements so future dye testing activity of that particular area can occur.

When an inflatable device is being used for dyed water flooding to block the flow of an incoming pipe, observe the speed of the flow and time duration to eliminate any possible sewer backups or discharges.

Data Management

All internal observations and source defects for each dyed water test area are to be video taped and or photographed. Video or photographs will be used as the primary means to verify defects. All video is to be in MPEG 1 format and stored using the approved naming convention on hard drives or CD-R discs; DVD-R's are not to be used as they are not universal. When conditions allow, still photographs shall be captured and used to document the existence of dye during a test.

All data entries on the dyed water test forms shall be completed. Sketches shall be neat and all data is expected to be legible. If any data (maps & various field forms of other activities) given to the sub-consultant are determined to be incorrect based on field observations, the sub-consultant will be expected to make corrections and or other notes of any observations that may be of importance to the engineer.

All data including test forms, data discs, etc. shall be delivered weekly by the dye testing sub-consultant. The sub-consultant shall review all data in order to try and eliminate questionable or incorrect data from being submitted to the engineer.

If at any time the submitted data is questionable, the dye testing sub-consultant will be asked to verify if data is correct and/ or retrieve correct data. Data will go through a tier 1 QA/QC and ultimately 3 tiers of QA/QC by the engineer. Hard data will be organized and stored in an access or database. Sub-consultants submitted data may be audited by engineer at any time.

If when performing the dyed water tests, the sub-consultant finds any issues of immediate concern, RK&K shall be notified immediately.

Any defects or maintenance issues identified that require immediate attention shall be classified into one of two classifications as follows.

- 1) **Emergency** - any extreme defect issue such as collapsing of pipe segment, major structural defects of a manhole or pipe segment, missing manhole covers as well as any other possible serious scenarios which may present a hazardous or dangerous situation which could lead to a possible sewer discharge.
- 2) **Priority** - any issue that should be addressed in order to prevent it from turning into an emergency priority. Issues or defects include heavy roots, heavy grease, active surcharge, or any other similar situation.

A location map will be prepared along with any available field data including photographs and any other useful information to identify and locate the problem and submitted to the engineer in a timely manner.

All information, including photographs and any defects should be collected in such a way that they can be easily imported into the clients GIS system.

Dyed Water Testing Forms

The dyed water testing form shown on the following page will be the form that needs to be completed including all referenced field information and photographic records.

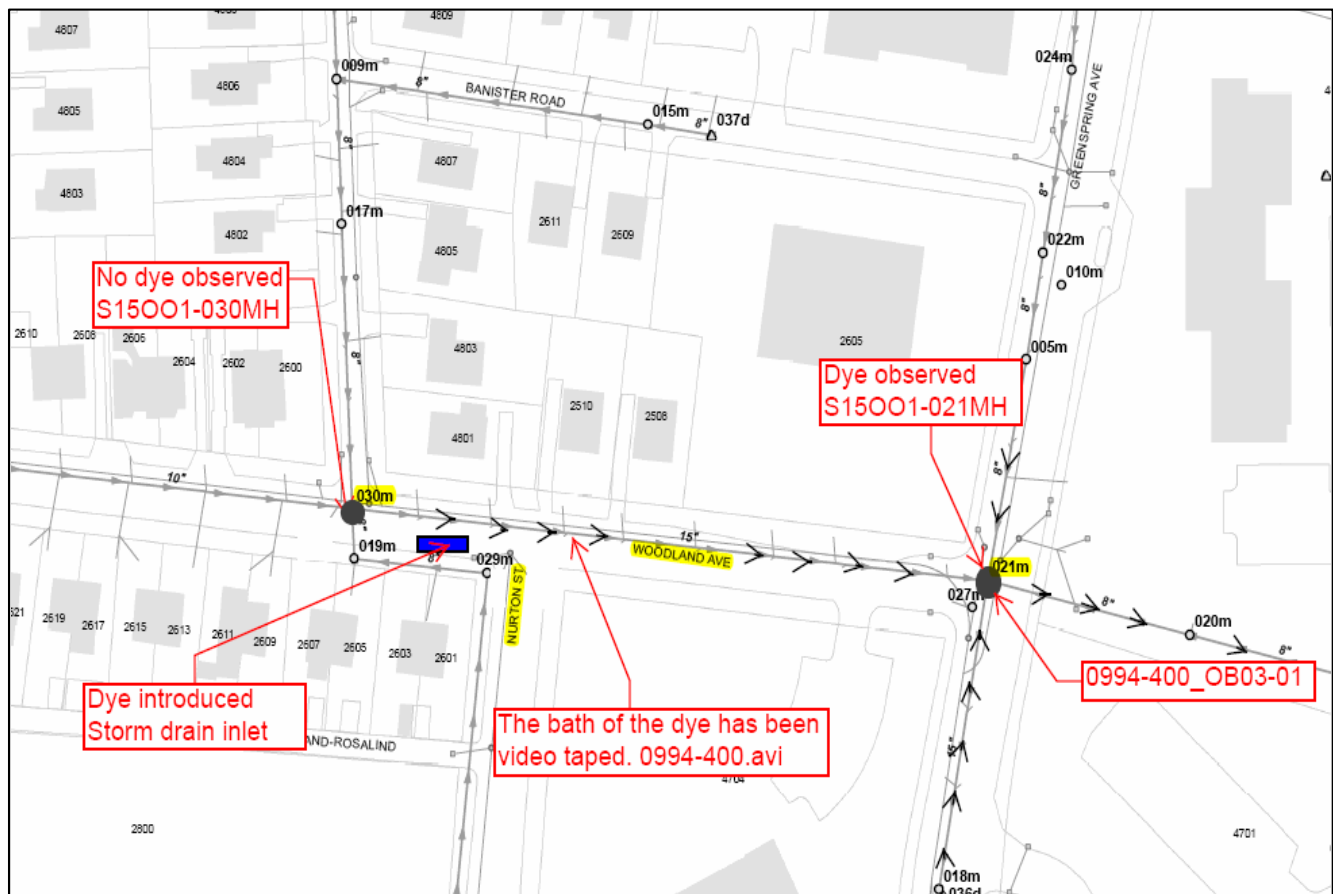
On the testing forms, the map/sketch sheet must show: the manholes, storm and sanitary sewers involved to the test with numbers, the location where the dye is introduced, sandbag or isolation locations, street names, photograph numbers and any other information the field technicians consider important to the test.

All notes, pictures and findings that are accumulated in the field should be put into a comprehensive report summarizing the dyed water testing work. The same comprehensive report will be loaded into an Access database created for this purpose.

On the following pages an example of completed Dyed-Water Test forms is illustrated. The test shown in this example was performed to verify a suspected connection of a storm drain inlet to a sanitary sewer.

| | | |
|-----------------------------------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------|
| CITY OF BALTIMORE WET WEATHER CONSENT DECREE SMOKE AND DYED WATER TESTING FORM | | Page _1_ of _2_ |
| Sewershed: JONES FALLS SEWERSHED | Company: RK&K | Date: 06/10/2008 |
| Test to be Performed: Smoke: __ Dyed Water: __X__ | Ground Condition: Dry: __X__ Damp: _____ Wet: _____ | Supervisor: MB |
| Manhole ID: S15OO1-021 | Test ID: 0994-400 | Notifications Made: X (Residents, Fire, 311) |

Field Sketch: (Show All Manholes with Numbers, Blower Placement Location, Sandbag or Isolation Locations, Street Names, Building Addresses and Locations, Defect Locations and Photograph Numbers)



| | | |
|-----------------------------------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------|
| CITY OF BALTIMORE WET WEATHER CONSENT DECREE SMOKE AND DYED WATER TESTING FORM | | Page _2_ of _2_ |
| Sewershed: JONES FALLS SEWERSHED | Company: RK&K | Date: 06/10/2008 |
| Test to be Performed: Smoke: __ Dyed Water: __X__ | Ground Condition: Dry: __X__ Damp: _____ Wet: _____ | Supervisor: MB |
| Manhole ID: S15001-021 | Test ID: 0994-400 | Notifications Made: X (Residents, Fire, 311) |

Field Sketch: (Show All Manholes with Numbers, Blower Placement Location, Sandbag or Isolation Locations, Street Names, Building Addresses and Locations, Defect Locations and Photograph Numbers)



0994-400_OB01-01.jpg



0994-400_OB02-01.jpg



0994-400_OB03-01.jpg

Smoke & Dye Testing

File Edit View Insert Format Records Tools Window Help Adobe PDF

Type a question for help

Tahoma 8 B I U

Smoke & Dye Testing (v 1.1)

Project: 0994 - Jones Falls Renum Test

Starting Test Number: 400

Data fields with an asterisk (*) in the column header are automatically created and can not be edited in this form

| TEST_ID* | TEST_TYPE | MANHOLE_ID | DATE | REPORT* |
|------------|-----------|-------------|-----------|---------------|
| + 0994-001 | Smoke | S23AA2005MH | 1/25/2008 | S0994-001.pdf |
| + 0994-300 | Smoke | S37QQ 020MH | 4/17/2008 | S0994-300.pdf |
| + 0994-301 | Smoke | S41QQ 011MH | 4/17/2008 | S0994-301.pdf |
| + 0994-320 | Smoke | S37AA1029MH | 6/23/2008 | S0994-320.pdf |
| - 0994-400 | Dye | S15OO1021MH | 6/25/2008 | D0994-400.pdf |

OB_ID* Comment

- 0994-400-01 CROSS CONNECTION SUSPECTED

PHOTO_ID* OB01-01 Filename* 0994-400_OB01-01.jpg Rename Image

Comment DYE OBSERVED AT S15OO1-021MH. STORM CONNECTED TO SEWER View Image

* PHOTO_ID* Filename* Rename Image

Comment View Image

Record: 1 of 1

Record: 1 of 1

Comments specific to photo CAPS NUM

The picture above illustrates the data for the example demonstrated earlier, with the data loaded on the access database. As mentioned in the previous pages the subcontractor needs to load all the information collected during the test into the Access database. The Users Guide Administrator's Manual in the pages that follow, contains the information needed to organize the field data and photographs on the access database.

The **Users Guide and Administrator's Manual for the Smoke & Dye Testing Database, a Microsoft Access 2000** database has been designed to facilitate the population of smoke and dyed water testing, observations, and defect photograph records according to the database schema and specifications outlined in the City of Baltimore's BaSES document. A copy of this section of the BaSES manual is provided in the following section.

SMOKE & DYED WATER TESTING – V07.01

Microsoft Access Database Users Guide and Administrator's Manual

**December 2007
Version 1.1**

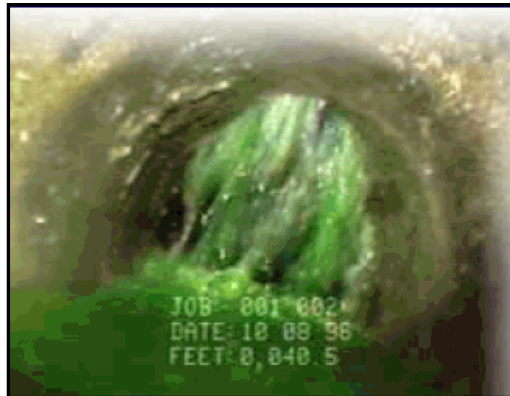


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Document History Table

| Date | Version | Notes | Initials |
|-----------|---------|---------------------------|----------|
| 12/3/2007 | 07.01 | Initial release for BaSES | RK&K |
| | | | |
| | | | |
| | | | |

Introduction

The Smoke & Dye testing database a Microsoft Access 2000 database is designed to facilitate the population of smoke and dye testing test, observations, and observation photos records according to the database schema and specifications outlined in version 07.02 of the **BaSES** document **Smoke and Dyed Water Testing** (Appendix 6-6). The database's forms automatically populate the record ID and filename fields leaving the user to focus on entering item specific information.

The following table lists the database tables and fields in the Smoke & Dyed Water Testing database along with additional information on how the application manages the field.

| Table TEST | | |
|-------------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Field | Read-Only | Remark |
| TEST_ID | Yes | Field is automatically populated when a new record is created |
| TEST_TYPE | No | User must select the type of test performed from a combo box. |
| MANHOLE_ID | No | User must enter the manhole ID. The application validates the manhole against the Baltimore wastewater manhole naming convention and informs the user if the entered ID is invalid. |
| DATE | No | User must enter the date of the test |
| REPORT | Yes | This field automatically populates as the record is saved |
| Table OBSERVATION | | |
| Field | Read-Only | Remark |
| OB_ID | Yes | Field is automatically populated when a new record is created |
| TEST_ID | Yes | Field is automatically populated when a new record is created |
| OB_COMMENT | No | User supplied |

| Table PHOTO | | |
|---------------|-----------|---------------------------------------------------------------|
| Field | Read-Only | Remark |
| PHOTO_ID | Yes | Field is automatically populated when a new record is created |
| OB_ID | Yes | Field is automatically populated when a new record is created |
| FILENAME | Yes | Field is automatically populated when a new record is created |
| PHOTO_COMMENT | No | User supplied |

Opening the Database

When the database is opened, the main user form is automatically displayed as shown in **Error! Reference source not found..** The form lists all the currently stored smoke and dyed water tests in the database.

Note: If the column header contains an asterisk, the field is automatically populated and managed by the application and can not be edited by the user

| TEST_ID* | TEST_TYPE | MANHOLE_ID | DATE | REPORT* |
|----------|-----------|-------------|------------|---------------|
| 0994-001 | Smoke | S13AA2001MH | 11/2/2007 | S0994-001.pdf |
| 0994-006 | Smoke | S11AA2004MH | 11/15/2007 | S0994-006.pdf |
| 0994-055 | Dye | S09YY_004MH | 11/16/2007 | D0994-055.pdf |

Figure 1 - Main database user form

Adding a Test to the Database

Before you may enter a new test to the database you must fill in the **Project** combo box and **Starting Test Number** textbox fields in the form's header.

Clicking the **Project** combo box will display a list of all the Baltimore City sewershed projects. Select the appropriate project.

In the **Starting Test Number** textbox enter the number from which the application will start assigning new test numbers. For a group of sequential tests, this control should only need to be set once. The application will start at this number and count upwards until it finds an unused test number.

With the above two controls set, you can begin entering data in any of the three user-editable fields: TEST_TYPE, MANHOLE_ID and DATE, on the row for a new record. As soon as you begin typing, you will note that the application fills in the TEST_ID field. The Report field is filled in when the TEST record is saved.

Adding an Observation

Clicking the small plus sign on the left side of the TEST record will open a subdatasheet showing all observations for the specific test selected, as shown in Figure 2.

Note: The **Comment** field is the only user-editable field in the Observation subdatasheet.

To add a new observation, enter a comment, and the OB_ID field will automatically be populated.

Smoke & Dye Testing (v 1.0)

Project: 0994 - Jones Falls

Starting Test Number: 1

Data fields with an asterisk (*) in the column header are automatically created and can not be edited in this form

| TEST_ID* | TEST_TYPE | MANHOLE_ID | DATE | REPORT* | | | | | | | | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------|------------|---------------|--------|---------|---------------|----------------------------------------------|---------------|------------------------------------------|---------------|-------------|---|--|
| 0994-001 | Smoke | S13AA2001MH | 10/31/2007 | S0994-001.pdf | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>OB_ID*</th> <th>Comment</th> </tr> </thead> <tbody> <tr> <td>+ 0994-001-01</td> <td>Lots of smoke in grass from house connection</td> </tr> <tr> <td>+ 0994-001-02</td> <td>Storm drain at NW corner of intersection</td> </tr> <tr> <td>+ 0994-001-03</td> <td>Roof leader</td> </tr> <tr> <td>*</td> <td></td> </tr> </tbody> </table> | | | | | OB_ID* | Comment | + 0994-001-01 | Lots of smoke in grass from house connection | + 0994-001-02 | Storm drain at NW corner of intersection | + 0994-001-03 | Roof leader | * | |
| OB_ID* | Comment | | | | | | | | | | | | | |
| + 0994-001-01 | Lots of smoke in grass from house connection | | | | | | | | | | | | | |
| + 0994-001-02 | Storm drain at NW corner of intersection | | | | | | | | | | | | | |
| + 0994-001-03 | Roof leader | | | | | | | | | | | | | |
| * | | | | | | | | | | | | | | |
| + 0994-002 | Smoke | S13AA2102MH | 10/30/2007 | S0994-002.pdf | | | | | | | | | | |
| + 0994-003 | Smoke | S23EE2005MH | 10/31/2007 | S0994-003.pdf | | | | | | | | | | |
| + 0994-050 | Smoke | S25II2015MH | 10/30/2007 | S0994-050.pdf | | | | | | | | | | |
| + 0994-100 | Smoke | S01A1_005MH | 11/2/2007 | S0994-100.pdf | | | | | | | | | | |
| * | | | | | | | | | | | | | | |

Record: 1 of 5

Figure 2 - Observation records

Note: Observation numbers are assigned sequentially by the application by finding the first observation index number available from 1. This means that the application will “backfill” to populate unused numbers.

For example, if observations 1 through 5 are currently in the database for a particular test and observation #3 is deleted. The next observation added to this test will have an ID index of 3.

Adding an Observation Photo Record

Clicking the small plus sign on the left side of the Observation record will open a subform showing all photos for the observation selected, as shown in

Smoke & Dye Testing (v 1.0)

Project: Starting Test Number:

Data fields with an asterisk (*) in the column header are automatically created and can not be edited in this form

| TEST_ID* | TEST_TYPE | MANHOLE_ID | DATE | REPORT* |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------|------------|---------------|
| 0994-001 | Smoke | S13AA2001MH | 10/31/2007 | S0994-001.pdf |
| <div>OB_ID* Comment</div> <div>0994-001-01 Lots of smoke in grass from house connection</div> <div> <div> <div>PHOTO_ID* 0B01-01</div> <div>Filename* 0994-001_OB01-01.jpg</div> <div>Rename Image</div> </div> <div> <div>Comment View of smoke in front of house</div> <div>View Image</div> </div> </div> <div> <div>* PHOTO_ID*</div> <div>Filename*</div> <div>Rename Image</div> </div> <div> <div>Comment</div> <div>View Image</div> </div> <div>Record: 1 of 1</div> <div> <div>+ 0994-001-02 Storm drain at NW corner of intersection</div> <div>+ 0994-001-03 Roof leader</div> <div>*</div> </div> | | | | |
| + 0994-002 | Smoke | S13AA2102MH | 10/30/2007 | S0994-002.pdf |
| + 0994-003 | Smoke | S23EE2005MH | 10/31/2007 | S0994-003.pdf |
| + 0994-050 | Smoke | S25H2015MH | 10/29/2007 | S0994-050.pdf |

Record: 1 of 3

Figure 3 - Observation Photo form

Note: The **Comment** field is the only user-editable field in the Photo subform.

To add a new photo, enter a comment, and the PHOTO_ID and Filename fields will automatically populate.

Smoke & Dye Testing (v 1.0)

Project: Starting Test Number:

Data fields with an asterisk (*) in the column header are automatically created and can not be edited in this form

| TEST_ID* | TEST_TYPE | MANHOLE_ID | DATE | REPORT* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------|------------|---------------|---------|----------------------|--------------|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------|-------------|--------------|----------|----------------------|--------------|------------------------------------------|--|------------|-------------|-------------|--------------|----------|--|------------|----------------|--|---------------|------------------------------------------|--|--|--|---------------|-------------|--|--|--|---------------|--|--|--|--|------------|-------|-------------|------------|---------------|------------|-------|-------------|------------|---------------|------------|-------|------------|------------|---------------|----------------|--|--|--|--|
| 0994-001 | Smoke | S13AA2001MH | 10/31/2007 | S0994-001.pdf | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| OB_ID* | Comment | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0994-001-01 | Lots of smoke in grass from house connection | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>PHOTO_ID*</th> <th>Filename*</th> <th></th> </tr> </thead> <tbody> <tr> <td>0B01-01</td> <td>0994-001_OB01-01.jpg</td> <td>Rename Image</td> </tr> <tr> <td colspan="2"> Comment: View of smoke in front of house </td> <td>View Image</td> </tr> <tr> <td>* PHOTO_ID*</td> <td>* Filename*</td> <td>Rename Image</td> </tr> <tr> <td colspan="2"> Comment: </td> <td>View Image</td> </tr> </tbody> </table> | | PHOTO_ID* | Filename* | | 0B01-01 | 0994-001_OB01-01.jpg | Rename Image | Comment: View of smoke in front of house | | View Image | * PHOTO_ID* | * Filename* | Rename Image | Comment: | | View Image | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PHOTO_ID* | Filename* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0B01-01 | 0994-001_OB01-01.jpg | Rename Image | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Comment: View of smoke in front of house | | View Image | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * PHOTO_ID* | * Filename* | Rename Image | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Comment: | | View Image | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Record: 1 of 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| + 0994-001-02 | Storm drain at NW corner of intersection | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| + 0994-001-03 | Roof leader | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| * 0994-001-04 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| + 0994-002 | Smoke | S13AA2102MH | 10/30/2007 | S0994-002.pdf | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| + 0994-003 | Smoke | S23EE2005MH | 10/31/2007 | S0994-003.pdf | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| + 0994-050 | Smoke | S25H2015MH | 10/30/2007 | S0994-050.pdf | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Record: 1 of 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Figure 3 - Observation Photo form

Naming Observation Photo Image Files

The **Rename Image** button can be used to rename photo files to the proper filename as defined in the BaSES specifications. When this button is clicked, a file browser dialog is displayed allowing the user to select the specific image file associated with this observation photo record as shown in Figure 4. Once an image file is selected, the application will properly rename the file so that it is properly linked to the observation photo record.

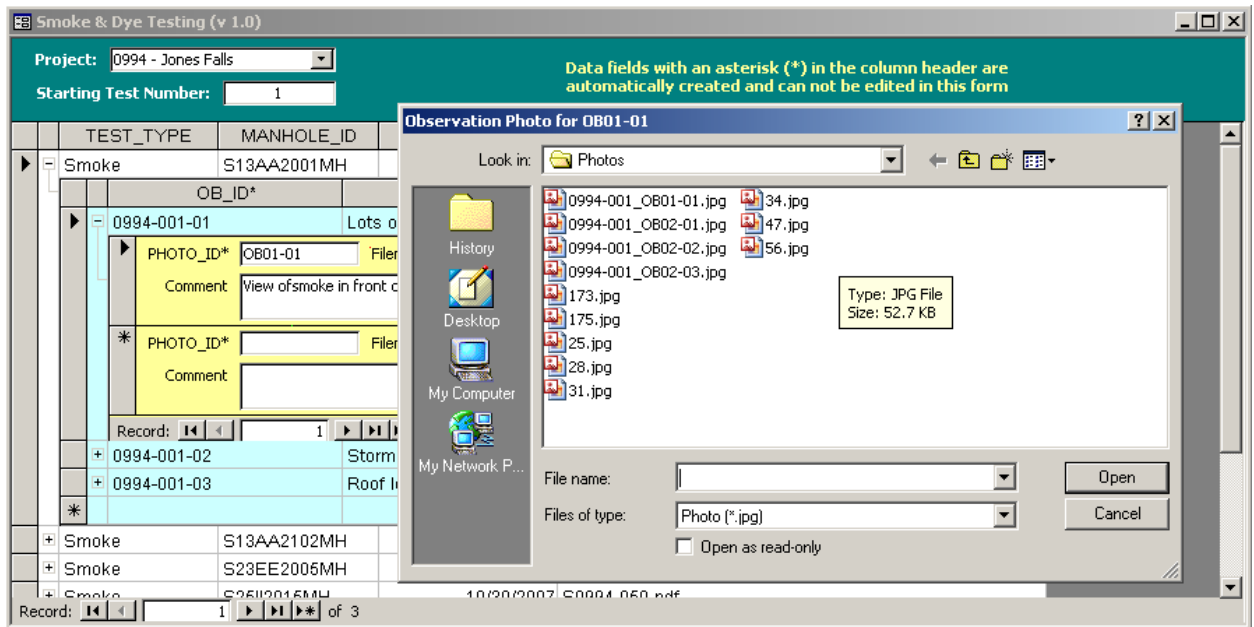


Figure 4 - Selecting a image file to rename

Viewing Observation Photo Images

The **View Image** button can be pressed to review currently select observation photo using the computer's default image viewer.

Renumbering a Test

The **Renumber Test** button can be used to modify the name of a selected smoke or dye test. In addition to changing the test name, the utility also updates the children observations and photo data database IDs and renames observation photos and report filenames that are currently linked to the database.

Select a test to renumber and press the **Renumber Test** button. The application will display the Renumber Test form as shown in Figure 5. The old test index and ID are display in the upper left corner of the form. You can enter a new index value to be used to create a new test ID.

If the Report Folder and Photo Folder are not populated, press the Browse button and select the folder in which the report or photo files exist. If these folder fields are

properly set, the application will automatically rename the external report and observation files associated with the renumbered test.

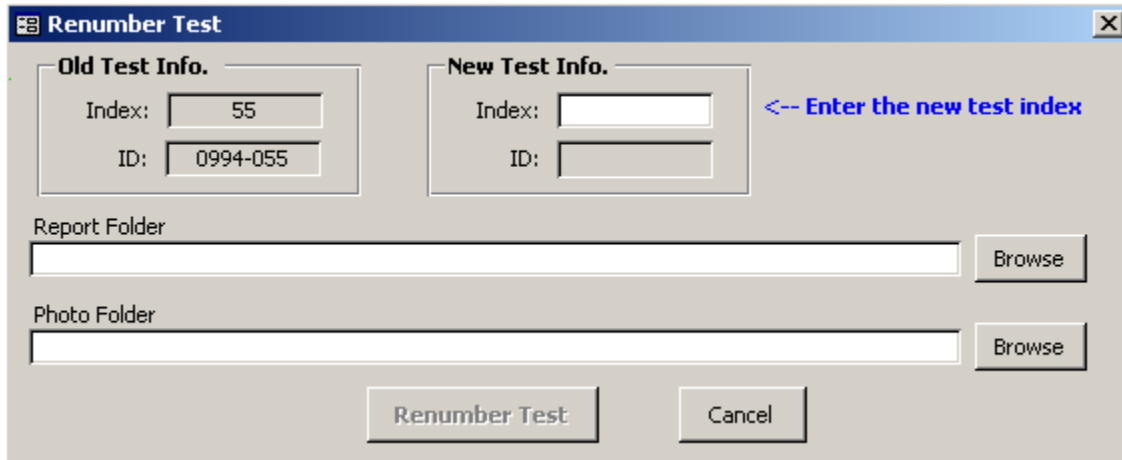


Figure 5 - Renumber Test form

System Prerequisites

The Smoke & Dye testing database requires the following:

- Microsoft Access 2000 or higher
- Microsoft common dialog ActiveX control 6.0 (comdlg32.ocx)

The common dialog ActiveX control is frequently already installed by other application and usually already installed on most computer. The comdlg32.ocx, along with the following files (comdlg32.dll, comdlg32.oca and comdlg32.dep), are located in Window's System32 folder. If they are not present in the System32 folder, perform the following steps to install and register the ActiveX control:

1. Copy the 4 files to this folder
2. Open up a command window
3. Change the active directory to the system32 folder (i.e. **CD C:\Windows\System32**)
4. Type: **regsvr32 comdlg32.ocx**